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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/083,596	02/27/2002	Hisaji Oyake	220143US2	7420
22850	7590	04/12/2005	EXAMINER	
OBLON, SPIVAK, MCCLELLAND, MAIER & NEUSTADT, P.C.			ANGEBRANNDT, MARTIN J	
1940 DUKE STREET			ART UNIT	
ALEXANDRIA, VA 22314			PAPER NUMBER	

1756

DATE MAILED: 04/12/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/083,596

Applicant(s)

OYAKE ET AL.

Examiner

Martin J. Angebrannndt

Art Unit

1756

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 28 February 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,2 and 4-10 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,2 and 4-10 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

Art Unit: 1756

1. The response provided by the applicant has been read and given careful consideration.

Rejections of the previous office action, which are not repeated below are withdrawn based upon the amendments to the claims and the corresponding arguments. Responses to the arguments of the applicant are presented after the first rejection to which they are directed.

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1,2 and 4-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yamada et al. '267, in view of Sato et al. '510.

Yamada et al. '267 teach optical disk mastering where the resist is coated to a thickness corresponding to the desired groove depth. This is generally between 40 and 100 nm. An argon ion laser is used to perform the exposure, followed by development, sputtering of nickel and electroplating to form a thick nickel master. The formation of grooves with pitches of 0.2 microns (200 nm) widths is disclosed. (10/37-11/10).

Sato et al. '510 teaches in example 1, an undercoating comprising a melamine, together with 4,4'-bis(diethylamino)benzophenone, 2,2',4,4'-tetrahydroxybenzophenone together with a surfactant in a solvent, which is coated onto a silicon wafer and heated to form an undercoating layer of 100 nm thick. A photoresist was then coated over this to a thickness of 1000 nm (11/35-12/5). This experienced no intermixing of the layers, no notching and was able to provide a good antireflective effect. (table 1). 2,2',4,4'-tetrahydroxybenzophenone is disclosed as a

Art Unit: 1756

crosslinking promoter (8/35-40). The benzophenone compounds are disclosed as having high UV absorption properties. (4/4-48). The undercoating is specifically designed to minimize the effects of reflections from the substrate. (abstract).

It would have been obvious to one skilled in the art to modify the process of Yamada et al. '267 by adding an antihalation layer, such as that taught by Sato et al. '510 to prevent inadvertent exposure by reflection with a reasonable expectation of achieving the results. The examiner notes that the materials disclosed by the applicant as co-initiators are known to be useful in forming anti-halation layers used with photoresists.

The use of the Sato et al. '510 addresses the concerns of the applicant with the examiner noting that the benefits of the antihaltion layer are clearly discussed in Sato et al. '510.

4. Claims 1,2 and 4-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yamada et al. '267, in view of Pampalone et al. '614 and Specht et al. '844.

Pampalone et al. '614 teach absorptive dyes layers comprising a dyes, a monomer and a photoinitiator used to prevent halation (2/4-67). This is disclosed as the basis for inclusion of a dyes in a bilayer resist system (1/22-31). The use of triacrylates and other polyfunctional monomers, which can crosslink and the absorptive layer is crosslinked using UV light and then heating. (3/13-51).

Specht et al. '844 teach dyes as sensitizers/coinitiators for resists (4/56-7/53), the use of photoinitiator mixtures is disclosed. (7/56-11/22, particularly 11/20-22). The use of aminobenzoates as photointiators is disclosed. (9/38-57).

It would have been obvious to one skilled in the art to modify the process of Yamada et al. '267 by adding an antihalation layer, such as that taught by Pampalone et al. '614 to prevent

Art Unit: 1756

inadvertent exposure by reflection with a reasonable expectation of achieving the results and further to use a mixture of photoinitiators as taught by Specht et al. '844 to increase the rate of curing an/or increase the sensitization of the layer.

This is a new line of rejection, therefore no further response is needed, but the examiner notes that no arguments were directed that this rejection.

5. Claims 1,2 and 4-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yamada et al. '267, in view of Pampalone et al. '614 and Specht et al. '844, further in view of Koshimura et al. '905.

Koshimura et al. '905 discusses the use of mixtures of photoinitiators (9/13-14) and specifically describes the use of tertiary amines, such as triethanol amine, ethyl-p-dimethylaminobenzoate, 2ethylhexyl-p-dimethylaminobenzoate, 2-butoxyethyl-p-dimethylaminobenzoate, 4,4'- dimethylaminobenzophenone and 4,4'- diethylaminobenzophenone as accelerators for photopolymerizable compositions.

In addition to the basis provided above, the examiner cites Koshimura et al. '905 to support the position that using plural photoinitiators, including benzophenones would be expected to increase the curing rate set forth above.

This is a new line of rejection, therefore no further response is appropriate.

6. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground

Art Unit: 1756

provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

7. Claims 1,2,4-6 and 8 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-25 of copending Application No. 10/495746 (US 2005/0006336).

The composition recited in claim 4 is embraced by the language of the instant claims describing the light absorbing layer composition as melamine resins are inherently thermally crosslinking (see Sato et al.)

This is a provisional obviousness-type double patenting rejection.

8. Claims 1,2 and 4-8 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-7 of copending Application No. 10/500719 (US 2005/0042427) in view of Sato et al. '510.

The claims recite each limitation except for specifics related to the composition of the light absorption (antihalation) layer. Sato et al. '510 teaches useful composition for this and the examiner holds that it would have been obvious to one skilled in the art to modify the claimed invention of copending Application No. 10/500719 (US 2005/0042427) by using the light absorbing antihalation layer of Sato et al with a reasonable expectation of gaining the benefits ascribed to it by Sato et al.'510.

This is a provisional obviousness-type double patenting rejection.

Art Unit: 1756

9. Claims 1,2 and 4-8 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-9 of copending Application No. 10/500816 (US 2005/0039621) in view of Sato et al. '510.

The claims recite each limitation except for specifics related to the composition of the light absorption (antihalation) layer. Sato et al. '510 teaches useful composition for this and the examiner holds that it would have been obvious to one skilled in the art to modify the claimed invention of copending Application No. 10/500816 (US 2005/0039621) by using the light absorbing antihalation layer of Sato et al with a reasonable expectation of gaining the benefits ascribed to it by Sato et al.'510.

This is a provisional obviousness-type double patenting rejection.

10. Claims 1,2 and 4-8 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-5 of copending Application No. 10/500008 (US 2005/0066825) in view of Sato et al. '510.

The claims recite each limitation except for specifics related to the composition of the light absorption (antihalation) layer. Sato et al. '510 teaches useful composition for this and the examiner holds that it would have been obvious to one skilled in the art to modify the claimed invention of copending Application No. 10/500008 (US 2005/0066825) by using the light absorbing antihalation layer of Sato et al with a reasonable expectation of gaining the benefits ascribed to it by Sato et al.'510.

This is a provisional obviousness-type double patenting rejection.

Art Unit: 1756

11. Claims 1,2 and 4-8 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-20 of copending Application No. 10/493301 (US 2004/0259039).

The composition recited in claim 4 is embraced by the language of the instant claims describing the light absorbing layer composition as melamine resins are inherently thermally crosslinking (see Sato et al.)

This is a provisional obviousness-type double patenting rejection.

12. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Oyake et al. '553 is by the same inventors, but does not describe the organic layer as light absorbing.

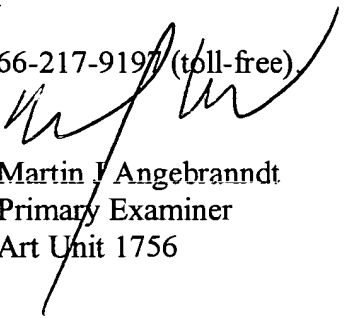
13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Martin J Angebranndt whose telephone number is 571-272-1378.

The examiner can normally be reached on Monday-Thursday and alternate Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mark Huff can be reached on 571-272-1385. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Art Unit: 1756

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Martin J. Angebrannndt
Primary Examiner
Art Unit 1756

04/07/2005